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Article

Process Philosophy and the Text-Image Interface: A Study of Three Western Australian Botanical Illustrators

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Abstract: Botanical illustration combines scientific knowledge and artistic technique. However, whereas illustrated botanical images record static visual qualities, such as form and color, written botanical narratives supply crucial sensory, ecological, historical, and cultural contexts that complement visual representation. Understanding the text-image interface—where images and words intersect—contributes to humanities-based analyses of botanical illustration and illustrators. More specifically, a process philosophy perspective reveals the extent to which botanical representations engage the temporality, cyclicity, and contextuality of the living plants being illustrated. This article takes up these themes through a comparative theoretical study of three female Western Australian botanical illustrators, Georgiana Leake (1812–1869), Emily Pelloe (1877–1941), and Philippa Nikulinsky (born 1942), whose lives together span the 183 year history of the Swan River Colony and the state of Western Australia. I apply a processist framework to examine the text-image interface of their works. All three illustrators use some form of textuality: marginalia, annotations, written accompaniments, introductory statements, and other narrative materials. In examining their written commentaries and traces, I identify the emergence of a process mode of botanical illustration that represents plants as ecological, historical, cultural, and temporal organisms.

Keywords: botanical illustration; process philosophy; Western Australia; Georgiana Leake; Emily Pelloe; Philippa Nikulinsky

1. Introduction: Process Philosophy as a Critical Perspective on Botanical Illustration

This article is a comparative theoretical study of three female Western Australian botanical illustrators, Georgiana Leake (1812–1869), Emily Pelloe (1877–1941), and Philippa Nikulinsky (born 1942), whose lives and works together span the 183 year history of the Swan River Colony and the state of Western Australia. As an interdisciplinary and global tradition with a distinguished history in Western Australia, botanical illustration hybridizes botanical science and visual art. Both rigorous scientific observation and skillfully deployed artistic technique are required to produce botanical illustration of enduring value. The Swedish botanist and founder of the binomial classification of organisms, Carl Linnaeus (1707–1778), recognized this requisite dialogue between art and science as intrinsic to botanical illustration. He commented: “A painter, an engraver and a botanist are all equally necessary to produce a good illustration; if one of them goes wrong, the illustration will be wrong in some respect” [1].

With a diversity of indigenous plants, many of which are endemic or restricted to the region, Western Australia (WA) has been the subject of much botanical exploration, documentation, and artistry [2]. Writing in the early to mid-1900s, Emily Pelloe noted that there were 4000 plant species in WA [3]. However, now the species count is 9,437 vascular plants within 1,543 genera and 226 families ([2], p. 87). Close to 8,000 of the total species number exists in the South-West Floristic Province, a biodiversity “hotspot” from Shark Bay in the north-west to Esperance in the south-east [4]. The navigator and naturalist William Dampier (1651–1715) is recorded as the first English visitor to Western Australia. He landed at the north-west coast of Australia in 1688 and 1699, and collected examples of the flora and fauna of what Europeans then knew as “New Holland”. Some of Dampier’s specimens gathered at Shark Bay in 1699 were preserved at the Oxford University Museum of Natural History when Emily Pelloe was writing in the 1920s and 1930s ([3], p. 12).

In 1801 the English explorer Matthew Flinders (1774–1814) on board the HM Sloop *Investigator* circumnavigated Australia, demonstrating it to be a single landmass. Austrian natural history artist Ferdinand Bauer (1760–1826), the illustrator on the *Investigator* with Flinders, produced some meticulous drawings of the flora of the biodiverse South-West corner of Western Australia [5]. Later in the history of the State, Scottish-born James Drummond (1787–1863) became a significant collector and early botanist of the Swan River Colony. His likely, although unconfirmed, interactions with illustrator Georgiana Leake intimate the collaborative linkages between female artists and male scientists during the development of botanical illustration in Western Australia ([2], p. 112–121). In 1936 Emily Pelloe worked with Government Botanist Charles Gardner (1896–1970) to produce a pamphlet, *Wildflowers of Western Australia*, for the Western Australian Government Tourist Bureau [6]. More recently, Philippa Nikulinsky and botanist Stephen Hopper have worked jointly as reflected by their co-authored publications *Life on the Rocks* (1999) [7] and *Soul of the Desert* (2005) [8].

Despite its interdisciplinary character and history, demonstrated by these examples from Western Australia, botanical illustration—as cultural critic Judy Dyson and others have observed—has been examined traditionally through scientific frameworks, rather than through the perspectives of art criticism or cultural theory ([1]) [9]. Regarding the history of botanical illustration in Australia, Dyson argues that it “became a tool recording imperialist endeavors to tame and utilise nature through

processes of documentation and collection, and was intimately associated with medical, social, economic and racial practices during the eighteenth and nineteenth centuries” ([9]). Extending Dyson’s line of argument, I suggest that works of Western Australian botanical illustration have not been sufficiently analyzed and contextualized using critical, humanities-based models. As an instance of its treatment in terms of taxonomic accuracy and value, Helen Hewson in *300 Years of Botanical Illustration* clearly classifies botanical illustration as a scientific subdiscipline: “Perhaps botanical illustration is the only discipline in science which may, from time to time, indulge in artistic licence” ([1], p. 5).

“Botanical illustration” is a contested term that, for some theorists, comprises both scientific illustration (oriented towards plant identification) and “flower painting” (oriented towards broad aesthetic appeal). For other commentators, “botanical illustration” strictly connotes anatomical drawings of plants that fall within the broad ambit of botanical art. Ben-Ari includes botanical art, botanical illustration, and technically accurate forms of flower painting within a single genre—termed “botanical illustration”—encompassing “works ranging from highly technical scientific drawings, to illustrations for books on horticulture, to paintings made simply for the sake of beauty” [10]. For Ben-Ari, the distinction between botanical art, flower painting, and botanical illustration is unclear; for instance, many “flower paintings” and other works of fine art include sufficient anatomical detail to facilitate degrees of plant identification, either to genus or species. Rather than limiting an analysis to distinct genres of botanical art, from scientific to aesthetic, Ben-Ari recognizes the commonalities of different modes of botanical art. The notion of “readability” emphasizes the realism of the rendering, allowing identification at least to the level of botanical genus: “All these works share an emphasis on careful observation and accurate rendering of botanical subjects so that the image is clearly ‘readable’ by the viewer” ([10], p. 602). However, works in which realism is secondary to aesthetics, such as the flower paintings of Georgia O’Keeffe, according to Ben-Ari, are not normally considered botanical art. Indeed, observation and accuracy are the hallmarks of botanical art. For the purposes of this article, I will use the term “botanical illustration” to refer to renderings of plants that exhibit some measure of technical accuracy and engagement with scientific knowledge, hence making the images readable to scientific and popular audiences. Although to variable degrees of precision and skill, the works of Georgiana Leake, Emily Pelloe, and Philippa Nikulinsky illustrate Western Australian plants as “art in the service of science” [11] or perhaps, more accurately, art in dialogue with science.

The history of botanical illustration is marked by periods of decline and resurgence in interest ([10]) [12]. It could be argued that Western botanical illustration began with the publication of medieval herbals and continued to develop during the Renaissance. Botanical illustration during the Renaissance was marked by increased interest in the natural features of plants and the development of techniques to represent botanical anatomies with finer precision. However, from 1740–1840, botanical art gained an exceptional burst of momentum through the development of scientific botany and the rapid accretion of global knowledge of plants through European colonization in the Americas, Africa, Asia, and Oceania. However, after the 1870s, botanical illustration declined, partly due to the development of photographic technologies and the professionalization of science. Since the 1970s there has been a resurgence of interest in botanical illustration because of the increased popularity of gardening, the development of ecology as an interdiscipline, and the increasing visibility of

environmental issues worldwide. Throughout its long history, the role of botanical illustrators has changed over time, involving different types of collaborations with scientists, ecologists, and conservationists. Gill Saunders in *Picturing Plants: An Analytical History of Botanical Illustration* argues that “perhaps more than any other scientific discipline botany has been dependent on illustrations for its development” [13]. The maturation of botany as a scientific discipline and taxonomy as a global system of knowledge in the 18th and 19th centuries was closely aligned with the work of natural history illustrators, such as Bauer. Illustrators were assigned to expeditions to the Americas, Asia, Oceania, and Africa to produce visual accounts of new plants in conjunction with the written descriptions of scientists and explorers ([1]). These relationships between scientists and illustrators were based, as Dyson argues, in the prerogatives of colonization and imperialist science. In contrast, the more recent surge of interest in botanical illustration is marked by partnerships between scientists and illustrators interested in regional conservation and biodiversity promotion, as well as taxonomic accuracy.

The aim of this article is two-fold. Firstly, I will present an examination of the works of Leake, Pelloe, and Nikulinsky using critical perspectives drawn from the humanities. Specifically, through a reading of the written information accompanying the illustrations, I will demonstrate the role of textual narratives, annotations, and marginalia in works of botanical illustration through what I will term the “text-image interface”, as a crucial, though under-examined, extension of Saunders’s notion of “graphic syntax”. Saunders asserts that the “graphical languages” ([13], p. 6) and “graphic syntax” ([13], p. 134) of botanical illustration reflect historical, cultural, ecological, and technical evolutions. For Saunders, the “de-contextualization or isolation of the specimen on a blank background” ([13], p. 15) focuses the viewer’s gaze on individual species and parallels the development of classificatory botany. By removing visual obstructions and entanglements with other species, the individual plant could be identified and thus positioned within the Linnaean hierarchy. The written reflections and accounts of Leake, Pelloe, and Nikulinsky provide narrative descriptions of the illustrated plants whilst revealing the analytical and creative processes of the artists. These written descriptions add back the context of the illustrated plant.

This nexus between botanical illustration and textual information—simply put, between words and images—has not been examined by scholars of botanical art to any extent, in part, because the images themselves tend to be held as sufficient representations of the plants *in situ*. The disconnect between botanical imagery and botanical textuality, I argue, is entrenched in the tradition of botanical illustration itself. For instance, the English botanist Joseph Banks (1743–1820) regarded the work of Bauer as so exhaustive it “rendered any text superfluous, each drawing being ‘intended to answer of itself any question a botanist can wish to ask’” ([9]). Hence, skilled botanical illustration of high taxonomic precision is thought to “render superfluous” or to make redundant the important textual descriptions or—in the case of Georgiana Leake—written traces provided by the artists. To varying degrees, Leake, Pelloe, and Nikulinsky all employ some mode of textuality to augment their visual renderings of Western Australian plants. Thus, the intriguing conjunction between their botanical illustrations and botanical narratives—between their images and written words—is the initial preoccupation of this article.

The second aim of this article is to expand the gamut of theoretical approaches taken towards botanical illustrations as, hybridically, scientific and cultural productions. To this effect, I will employ

an investigatory perspective derived from process philosophy. How can process philosophy contribute to our understandings of botanical illustrations and their associated textual traces and materials? Collectively and to some extent individually, the works of Leake, Pelloe, and Nikulinsky demonstrate an evolution towards greater attentiveness to the ecological processes and symbiotic associations of Western Australian plants over time. In particular, Nikulinsky's work represents the apotheosis of a process approach to botanical illustration. Her representations of the ecological and physiological phases of plants through the Western Australian seasons are best conceptualized as a process mode of representation. Furthermore, Nikulinsky's work also suggests a plant's relationship to its broader ecological habitat. This consideration includes the plant's interdependencies with other plants, animals, and biological forms, as well as the relationship between an individual plant's flowers, its leaves, and its overall physiology. In approaching the works of these three illustrators from a process perspective, I will also call on the theoretically neglected interplay between textual description and visual representation, elaborated above as the text-image interface. Whilst Leake's textuality is preserved as marginalia, Pelloe's works include significant written introductions and other narrative accompaniments woven into scientific descriptions. Similarly, Nikulinsky's poetic writings, in close conjunction with her illustrations, mark the evolution of botanical illustration, as a Western Australian tradition, from an imperialist tool aligned with scientific classification to an embodied mode of appreciating the subtle changes plants undergo over time. Thus, it is the written marginalia and text in tandem with the visual illustration itself that helps to situate the rendered botanical species "in a wider cultural field" ([9]).

In this article, I claim that Leake, Pelloe, and Nikulinsky are representative of their times and place. Their collective times span roughly 180 years whereas their place in South-West Australia connects them and underscores this comparative study. Leake's process of illustration, made transparent both by her illustrations and the private marginalia accompanying them, reveals a grappling with the emerging terms of science and the accurate representation of individual plants, largely decontextualized, in Saunder's terms. I argue that Leake's perception of South-West plants reflects a pre-ecological view in which species identification and a highly aesthetic, flower-focused perspective on nature is a driving factor of illustration. Nonetheless, I argue that her works constitute botanical illustration. This claim does not dismiss the work of botanical artists outside Australia, such as Maria Sibylla Merian (1647–1717) and others, who portrayed animals, plants, and insects in ecological settings without the decontextualization of the individual organisms. Indeed, the scope of this article does not allow for the extensive inclusion of illustrators outside Australia. Whereas Leake's works were probably personal, Pelloe's were largely popular, although I again assert that Pelloe's images still constitute works of botanical illustration, as per Ben-Ari's continuum above. The evolution of botanical illustration towards ecology, conservation, and bioregionalism is epitomized by Nikulinsky's renderings. In the current Anthropocene era of sustainability, climate change, biodiversity loss, and species extinction, Nikulinsky's works—that is, her illustrations and textual commentaries—are typical of her time and place. They reveal an ecological awareness that is absent in Leake and nascent in Pelloe. During the course of the article, I argue, following Ben-Ari, that the work of all three illustrators falls within the continuum of botanical illustration, from highly technical and specialist-driven to aesthetic and popularly-focused.

2. Process, Change, Historicity: New Interpretations of Botanical Illustration

In the above section, I suggest that the analysis and contextualization of botanical illustration would benefit from the theorization of process and its implications for aesthetics. The plant morphologist Rolf Sattler avers that the concept of stasis—stillness, inertia, synchronicity—factors prominently into human understandings and representations of living plants. Sattler reconfigures the assumed binary between stasis and process—movement, dynamism, diachronicity—by characterizing plant structures themselves as processes:

Structure tends to be considered static, whereas process is dynamic. If we mistake the map for the territory, we conclude that plants consist of structures within which processes occur. On closer inspection we learn, however, that what appears static is in fact also dynamic [14].

Extending Sattler's ideas here, one could say that plant nature is a dynamic existence always situated between being and becoming; stasis and process; and the synchronicity of one moment represented in time and diachronicity of many moments represented over time and through botanical life cycles. Sustained, temporal, and sensory awareness of flora in a particular place is the defining practice of most botanical illustrators across cultural traditions and historical periods. This practice of close awareness implies that the map—for example, the static anatomy of a flower during one phase in its life cycle—is not the territory. Here, the territory may be conceived of as the complex field of ecological associations in which the plant and its flower change incrementally in partnership with other life forms. In contrast to an atomistic philosophy of nature as the mere aggregation of stable things, including “real” flowers, seeds, and anatomical parts, process elicits “temporality, historicity, change, and passage as fundamental facts” [15]. Rather than isolated extracts or taxonomic structures, plants can be defined by their connectivities, fluidities, and temporalities. Therefore, a critical perspective on botanical illustration should consider process as a principle that can illuminate the practice. As a theoretical perspective on works of botanical art, process reveals the capacity of language—visual or written, as well as visual in conjunction with written—to express the subtle changes plants manifest temporally, changes detected and rendered by skilled botanical illustrators (and, arguably, writers).

Nicholas Rescher goes on to characterize process philosophy as a means to describe reality and nature as necessarily linked to temporality and change: “The guiding idea of its approach is that natural existence consists in and is best understood in terms of processes rather than things—of modes of change rather than fixed stabilities. For processists, change of every sort—physical, organic, psychological—is the pervasive and predominant feature of the real” [16]. For Rescher, process philosophy underscores the agentic qualities of organisms, their capacity for dynamism, and their inescapable relationships to other organisms that characterize their ways of being in the world: “Even the seemingly static studies and properties of objects—their color, or shape, or size—are matters of functional interrelationships with others and of an item's self-projection upon a stage of other agents” ([16], p. 2). According to Rescher, there are three defining features of a process: (1) *complex is a noun*: “a process is a complex—a unity of distinct stages or phases;” (2) *unity requires temporality*: “this complex has a certain temporal coherence and unity;” and (3) *process*

yields structure: “process has a structure, a formal generic format in virtue of which every concrete process is equipped with a shape or format” ([16], p. 2).

Significant philosophers, associated with the history of processism, include pre-Socratic thinker Heraclitus (bc 535–475); English philosopher Alfred North Whitehead (1861–1947); and American philosopher Charles Hartshorne (1897–2000). Of note is Whitehead’s model of process which derives from his analysis of “scientific materialism” or “the fixed scientific cosmology which presupposes the ultimate fact of an irreducible brute matter, or material, spread throughout space in a flux of configurations” [17]. Intrinsic to Whitehead’s critique is the marginalization of the agency of the matter or material: “In itself such a material is senseless, valueless, purposeless. It just does what it does do, following a fixed routine imposed by external relations which do not spring from the nature of its being” ([17], p. 274). In response, Whitehead further develops the dynamic notion of concrescence as signifying the real through the fluid aggregation of many things, defined as “the name for the process in which the universe of many things acquires an individual unity in a determinate relegation of each item of the ‘many’ to its subordination in the constitution of the novel ‘one’” [18]. Hence, a focus on the floristic image as the “novel ‘one’” of botanical illustration is a rendered concrescence of a multitude of interactions between the flower and itself, and between the flower and its lifeworld over time. Such concrescences may be read as layers constituting each frame of botanical illustration; elucidating these layers is the challenge of a process-oriented mode of botanical criticism. These layers are visual, sensual, cultural, historical, and ecological.

Therefore, the principle of process can provide an analytical vantage point for further understanding the works of three Western Australian botanical illustrators. If a plant as an organism can be considered a process rather than a mere material structure, then how does its representation reflect or disregard its agency, interdependencies, and evolutions over time? Evident in the work of Pelloe and culminating in Nikulinsky’s, we find an acute interest in the ecological and conservation realities embedding the illustrated plants in an *umwelt*. Moreover, and especially manifested in Nikulinsky’s contemporary ecologically conscious work, we find explicit links between the most aesthetically appealing component of the illustrated plant—its flower—and its seeds, leaves, and pollinators working in symphony as part of a botanical process, or, in Whitehead’s terms, a botanical concrescence represented by the artist.

A process-oriented mode of botanical illustration also entails the representation of the myriad associations between a plant and its habitat coupled to the evolution of the plant temporally—from budding to flowering to seeding to dormancy. Moreover, along the continuum between Leake and Nikulinsky, there is a marked movement from *anthocentric* (that is, flower focused) illustration to *ecocentric* (that is, process focused) or, shall we say, *concretocentric* (that is, focused on the many aspects of ecological relationships between a plant and its environment) illustration. Admittedly, in order to delimit this discussion of botanical illustration and process philosophy, I will neither deal sufficiently with other historical, cultural, and environmental factors that have spurred the evolution of botanical illustration in the State nor address the feminist and/or ecofeminist concerns that invariably arise through a focus on the works of three female illustrators. Such related discussions merit the sustained attention of separate articles. Instead, it is my goal here to introduce a novel theoretical perspective through process for articulating the nuances of their botanical illustrations and charting an overall progression between their works—from colonial to contemporary times, from the

representation of the flower in relative isolation to the representation of the perpetually shifting ecological lifeworld of the plant.

3. Georgiana Leake's Insinuations: Reading Wildflower Marginalia

Born in 1812 in England, Georgiana Kingford became the second wife of George Leake (1786–1849), one of the most powerful early settlers of Western Australia and 26 years her senior ([2], p. 1). In 1833, at the age of 21, she arrived in the Swan River Colony, only four years after its founding, with her father and mother who sought to escape the recession in England. Georgiana is regarded as the first Western Australian botanical artist. A small folio of 44 water color paintings depicting 60 different Western Australian wildflowers is preserved as her legacy. Her folio is housed in the Royal Western Australian Historical Society's archives and was most likely executed over a 20 year period between 1834, shortly after her arrival in the Colony, and 1854, shortly after her return to England. Although there is no evidence to confirm their association, Georgiana could have come into contact with the Government Botanist James Drummond through her enterprising and influential husband George Leake. As such, Drummond could have assisted Georgiana with the scientific naming of certain plants, and may have pointed her in the direction of emerging western Australian botanical publications of the period, such as John Lindley's *A Sketch of the Vegetation of the Swan River Colony* [19].

However, unlike the extensive written commentaries of Pelloe and Nikulinsky, Leake's textual accompaniments take the form of annotations or marginalia contextualizing her wildflower images. Her marginalia tend to reveal her grappling with the scientific names of the plants she illustrated. Due to the private nature of her botanical work, the textual amendments to her images were probably reminders to herself rather than information written for an audience. Nevertheless, these marginalia reveal her process of engaging with emerging nineteenth-century scientific knowledge of Western Australian plants. As Love and Sherwood observe, "that she later bothered to enquire some of the correct botanical names from Kew Gardens in London suggests that she had an interest in flora that went well beyond the simple interest of an ordinary amateur" ([2], p. 71). Leake's works raise the question over the distinction between botanical illustration and flower painting. Indeed, some commentators would argue that Leake is more of a flower painter than an illustrator. However, as I assert in Part I, such a distinction is artificial and tends to ignore the individual styles, technical skills, and historical contexts of the artists. Leake's works reveal her observation and accuracy; additionally, her consideration of scientific names, as evidenced through the marginalia, and her subsequent research at Kew Gardens align her illustrations with "art in the service of science" rather than aesthetic reverie solely.

Her botanical plates published in the book *Georgiana Leake's Wildflower Album: Western Australia's First Botanical Artist* generally depict individual species of wildflowers endemic to the environs of the Swan River ([2]). However, other images illustrate South African species, some of which have become invasive exotics in the State today, such as the Cape Weed (*Arctotheca calendula*) (Figure 3). The colors are bold and realistic, replicating the vibrant tones of living plants in flower yet signifying an *anthocentric* mode of illustration that centralizes reproductive parts. In the majority of her illustrations, the plant stems are truncated, although some

leaves are evident. As a whole, Leake's illustrations demonstrate the gravitas of flowers (rather than plants as a whole in their environments) to botanical illustrations of her historical moment. As Love and Sherwood argue, in all likelihood, her illustrations served the purposes of domestic display and personal enjoyment of the artist, rather than scientific study ([2]). However, the accompanying marginalia reveals, among other things, Georgiana Leake's attempts at taxonomic identification and, hence, her peripheral engagement with emerging botanical knowledges of the era. For example, Plate I depicts the Swan River Daisy (*Brachyscome iberidifolia*) at the top of the page and the Scarlet Runner or Running Postman (*Kennedia prostrata*) at the bottom (Figure 1). Leake's marginalia, penned calligraphically, reads "Kennedies [*sic*]" in ink and "or Hardenbergia Kew Brachysema Praemorsum". As Love and Sherwood ask, "Did she take the painting to Kew in 1854 to try to make the identification?" ([2], p. 229). The historical circumstances of the Leake's work might never be resolved, but this series of well-preserved images endures as a tangible record to be interpreted. In centralizing the flowering phases of the Swan River Daisy and the Running Postman, Plate 1 lacks reference to the cyclical or temporal natures of these species, their transactions with other flora and fauna, and the ecological contexts in which the plants develop. Such expressly contemporary ecological concerns—found absent in Leake's work for numerous reasons out of the present scope—come to strongly inform Nikulinsky's illustrations. Moreover, as a reading of Leake's marginalia suggests, taxonomic naming requires a synoptic snapshot of the plant with anatomical parts laid bare in order to signify its identity and locate its position within the evolutionary hierarchy.

Figure 1. Plate I of Georgiana Leake's *Wildflower Album* with Swan River Daisy and Scarlet Runner.



As with the work of other botanical illustrators of Leake's time, folk knowledge of plants interweave with emerging scientific knowledge through representational practices linked to nomenclatural exertions. Plate XXII depicts Wedding Bush (*Ricinocarpus glaucus*) (Figure 2). The five-petaled flowers are small and pinkish-white, and the stiff compact leaves are characteristic of the Euphorbiaceae family. Leake gives no name for the plant, but her marginalia reads curiously "Large thick bush like a white cloth thrown over it" to evoke through visual detail the plant in flower ([2], p. 181). Here, Leake's marginalia allows the imagination of the viewer to shift away from the micro-scale perspective of her renderings and towards a landscape point-of-view. The reader-viewer effectively steps away from the small flowers to acquire a perspective of the Wedding Bush species as a totality. Additionally, "like a white cloth" constitutes both an aesthetic and a domestic metaphor. The phrase is an aesthetic metaphor insofar as it accentuates the surface of the Wedding Bush in flower, honing in on the pale color produced during this particular phase in its annual cycle. Moreover, Leake's phrase can be read as a domestic metaphor insofar as it evokes the setting in which Leake worked in accordance with the dictates of her socio-historical position as "the wife of a respected settler [who] had gained the status of a married woman and was now therefore respectable in the eyes of society" ([2], p. 73). Her domestic metaphor also invokes a milieu which would have been recognizable to other readers in the Perth and Fremantle areas frequented by the Leakes: a kitchen with a white table cloth. This latter aspect is especially redolent in light of Love and Sherwood's assessment that Leake executed her illustrations not for scientific reasons alone, but for pleasure, decoration, self-edification, and, possibly, to build a sense of community for herself within the isolated colony. Hence, due to her geographical and historical contexts, her intended audience was most likely immediate: herself, her family, her colleagues and those of her husband, and the Swan River Colony of western Australia. Only recently has her work garnered an international audience, leading her to be regarded as Western Australia's first botanical illustrator.

Examining some of Leake's representations of non-indigenous plants further indicates the various purposes of textual marginalia in her work. Plate XVIII depicts the yellow daisy-like flowers, hirsute stems, and crenulated leaves of Cape Weed (*Arctotheca calendula*) ([2], p. 173) (Figure 3). Leake's penciled marginalia at the bottom of the page reads "supposed to be a street weed imported in straw packages" ([2], p. 239). Whereas the representation of the flowers, stems, and leaves provide the reader-viewer an aesthetic or taxonomic gestalt, the short textual accompaniment situates the plant in a larger cultural and natural lifeworld. As a "street weed," the Cape Weed is subsumed within the cultural category of "weed," implying the social perception of the plant as out of place, non-indigenous, invasive, exotic, alien, or aggressive. The reader-viewer learns that between 1834 and 1854, the Cape Weed had already become widespread enough to be classified pejoratively as a weed. Moreover, the phrase "imported in straw packages" illuminates the mode through which the Cape Weed became entrenched in western Australia. The Cape Weed is a plant formerly growing in association with cultivated oats, rye, alfalfa, and other straw-yielding species in South Africa. Hence, remarkably, her succinct textual intervention coalesces historical, cultural, and ecological knowledges that can be obscured behind the bold colors and true-to-life dimensions of the illustrated plants. Imaginatively, the reader-viewer can situate the Cape Weed at the side of a road in Fremantle or Perth, whereas the image alone represents the plant in isolation from its milieu.

Figure 2. Plate XXII of Georgiana Leake's *Wildflower Album* featuring Wedding Bush.



Figure 3. Plate XVIII of Georgiana Leake's *Wildflower Album* picturing Cape Weed.



Figure 4. Plate XIX of Georgiana Leake's *Wildflower Album*.

Furthermore, Plate XIX depicts one non-indigenous plant and four indigenous Western Australian species, respectively: Yellow Ixia (*Ixia maculata*), Slender Lobelia (*Lobelia tenuior*), Winged Stackhousia (*Tripterococcus brunonis*), Morning Iris (*Orthrosanthus laxus*), and Speckled Snakebush (*Hemiandra linearis*) ([2], p. 174) (Figure 4). Leake's annotation for Yellow Ixia reads "Ixia a Cape of Good Hope flower", whereas for Winged Stackhousia she notes its name, "Stackhouse [*sic*]", and, in pencil, comments on its smell: "scented like a hyacinth" [*sic*] ([2], p. 240). Leake's reference to olfactory experience of Winged Stackhousia suggests that textual augmentation of botanical imagery—in the form of annotations, marginalia, or fuller narrative accounts—can round out the evocation of a plant's sensory world. It is essential to recognize that these kinds of experiential and contextual nuances of plants evade visual signification. Additionally, the phrase "like a hyacinth [*sic*]" is a linguistic trope that constitutes a northern hemispherical analogue used to convey the sensory experience of an unfamiliar, antipodean species [19]. Hence, Leake's written marginalia coalesces strands of historical, cultural, ecological, and sensory contexts. In reciprocally illuminating dialogue, visual and textual representations more fully evoke a plant in its *umwelt*—as a totality of its multiple influences, as a confluence of these generative forces merging within the one plant and its representation. Whilst the complementarity between word and image is evident in Leake's annotations, a fuller manifestation of the text-image interface occurs in Emily Pelloe's Western Australian botanical illustrations of the first half of the twentieth century. The text-image interface, I argue, is integral to a process analysis of botanical illustration.

4. Emily Pelloe: Process, Conservation, and Representation

Born in St. Kilda, Melbourne on 3 May 1877, Emily Harriet Pelloe worked as a journalist, equestrienne, botanist, and artist [20]. In 1901, the year in which Western Australia federated with other British-ruled Australian colonies, Pelloe relocated with her mother and father to WA. A year later, in 1902, she married Theodore Parker Pelloe, a bank manager, and subsequently spent most of her life in Perth where she would develop an abiding interest in the indigenous plants of the State ([1], p. 167). In 1916, she began her life-long study botany, and, in 1921, she published *Wildflowers of Western Australia* which “was claimed as the first book in the English language dealing with Western Australia’s extensive and diverse flora” ([20]). Pelloe was aware of the historical significance of *Wildflowers of Western Australia*, as paraphrased by Stewart above, when she wrote “no book has as yet been published in the English language dealing exclusively with the extensive and diversified flora of Western Australia” ([3], p. 11). In order to produce wildflower illustrations, she travelled by horseback into the bush on a horse named “Snowdrift” because “many of the flowers painted were too delicate, and withered too quickly to allow of their being done at home” ([3], p. 29).

Wildflowers of Western Australia includes eight color plates and fifteen black and white drawings (Table 1). The publication is divided into six temporally and taxonomically structured sections: Introduction; January to June; July and August; September and October; November and December; and Families and Genera. Pelloe organized her material cyclically according to key species flowering during these periods, rather than alphabetically according to overall floristic families, which is a format used by some contemporary Western Australian botanical guides [21]. Pelloe’s *Wildflowers* evokes the Western Australian bush in-flower year-round, hence its organization around longer-term processes rather than taxonomic structures solely. As with Leake’s illustrations, Pelloe’s works were designed for popular enthusiast—rather than specialist scientific—audiences, although the work still should be classified as botanical illustration, as discussed in Section I. Both *Wildflowers of Western Australia* (1921) ([3]) and her later illustrated work *West Australian Orchids* (1930) [22] contain instructions for reader-viewers in the practice of wildflower appreciation. Thus, these works evidence a nascent twentieth-century sense for plant conservation well before the term “conservation” came into use in Australia. Pelloe comments: “If the expedition is for the sole purpose of flower-hunting, be sure to go from Swan View to Darlington, and turn your back on the view. Otherwise, you will spend a lot of time gazing out over that wide expanse of country with the ocean gleaming in the distance, and possibly miss many of the flora treasures at your feet” ([3], p. 29). Her advice about how to appreciate flora has aesthetic connotations; from her point-of-view, the expansiveness of the vista distracts from the smallness of flowering plants underfoot.

Figure 5. Sketch of eleven different gum nuts from Emily Pelloe’s *Wildflowers of Western Australia*.



Like Georgiana Leake’s early illustrations, Pelloe’s work oscillates between scientific and aesthetic language. Suited for a popular, wildflower-loving audience, the language Pelloe uses is, in particular, visually compelling, calling on aesthetic qualities of gracefulness, profusion, and luxuriance to convey something essential about Western Australian flowers. She describes how “the white starry flowers *Burchardia umbellata*, called by the children ‘Wax’, and the purple flower-heads of *Sowerbaea laxiflora*, contrast daintily as they sway on their long graceful stalks in luxuriant profusion” ([3], p. 31). Regarding the fragrant South-West genus *boronia*, Pelloe comments “*Boronia megastigma*, with its sweet-scented little reddish-brown flowers, found in damp and swampy situations in the south-west, fills the bush there with fragrance. It does not grow in a wild state about Perth, but large quantities are sent up for sale in the streets” ([3], p. 32). This statement is exemplary of the text-image interface, revealing how written narrative can augment botanical illustration and, thus, how linguistic and pictorial elements can interplay in environmental works such as *Wildflowers of Western Australia*. Firstly, Pelloe summons the olfactory sensation of *boronia* as “sweet-scented” correlated to her visual impressions of the plant bearing “little reddish-brown flowers”. As I argued above in reference to Leake’s illustrations and marginalia, non-visual information about a plant can be obscured in works of botanical illustration; text significantly rounds out the sensory milieu of an illustrated organism. Secondly, in addition to her use of aestheticized language to narrate the plant, Pelloe also conveys details about the habitat of *Boronia megastigma* as a species occupying “damp and swampy situations”. The plant is literally situated in an ecological niche—in a place in the bush—rather than depicted as a colorful yet isolated image on the blank background of a

two-dimensional space. Thirdly, Pelloe recognizes and consequently documents folk knowledge of *Boronia megastigma* in observing “large quantities are sent up for sale in the streets”. Hence, the text-image interface provides vital sensory information about the plant; conveys habitat specifics and thus becomes an ecological form of botanical representation; and evokes the cultural milieu of the plant in wider transactions with human commerce and experience. I suggest that the folk dimensions of Pelloe’s *Wildflowers* and other works are key to their popular appeal. Throughout her introductory section in particular, she references cultural knowledge surrounding other Western Australian species. For instance, wattles were used by early Western Australian settlers to construct their homes, “the hurdles [woven wattle branches] being daubed with mud” ([3], p. 32).

In producing a popular work, Pelloe combines scientific information and personal commentary with botanical illustrations of different styles. Regarding *Wildflowers of Western Australia*, Hewson comments that the “book is sparingly illustrated with fairly poor pen sketches and eight color plates, mostly of bunches of flowers” ([1], p. 167) (Table 1; Figures 5 & 6). Figure 5 depicts the gum nuts of eleven eucalypts in the style of black and white line drawings. Whilst there is taxonomic (and thus scientific) value in Pelloe’s discussion of gum trees, Chapter II, January to June, opens with an aesthetic (and thus popular) narrative description of *Eucalyptus ficifolia*, the West Australian Red-flowering Gum. Pelloe writes: “the crimson-flowering gums contrasting richly with the creamy fluffiness of most of the other gum blossoms, the floral world of Western Australia welcomes the New Year in festal attire” ([3], p. 19). However, in addition to purely visual language, Pelloe goes on to invoke the historical, artistic, and folk uses of eucalypts in order to situate these plants in a broader ecological, historical, and cultural network. The gum nuts “make quaint mounts for leather bags, especially appropriate for those decorated with poker-work or stamped designs of Gum-leaves or blossom. They were largely used during the Great War as “protectors” for knitting needles” ([3], p. 20).

Pelloe’s eight colour plates show wildflowers choreographed for domestic purposes. Plate II, presented in this article as Figure 6, is botanical illustration performed in the mode of floral arrangement, with bunches of flowers, including sixteen yellow, purple, pink, and red flowers, with Prickly Hovea (*Hovea chorizemifolia*) and Red Runner (*Kennedy prostrata*) positioned centrally in the composition. Here the artist’s *anthocentric* priorities remove any sense of wildflowers in the process of decay in relation to other organisms and to the overall physiology of the plant (*i.e.*, its roots, leaves and stems). The flowers have been composed by the artist for purposes of visual balance, dimensional gracefulness, and color harmony. Accordingly Pelloe emphasizes the decorative merits of Western Australian flowers: “Most wildflowers are very effective for indoor decoration. But a great deal depends on their arrangement. The best guide for this is to study the natural habit of the flowers” ([3], p. 16). In a similar vein, Plate III (not pictured here) offers a composed scene with the deep red of Native Fuchsia (*Grevillea wilsonii*) at the centre, ringed by purple *Scoevola striata* and *Patersonia occidentalis*. It is through the extensive textual accompaniments that the reader-viewer gains a sense of the illustrated plants as sensorial and networked beings. Whereas the color plates capture the aesthetically compelling visual features of Western Australian wildflowers in static terms, the historical, cultural, and ecological commentaries foster a process mode of botanical representation.

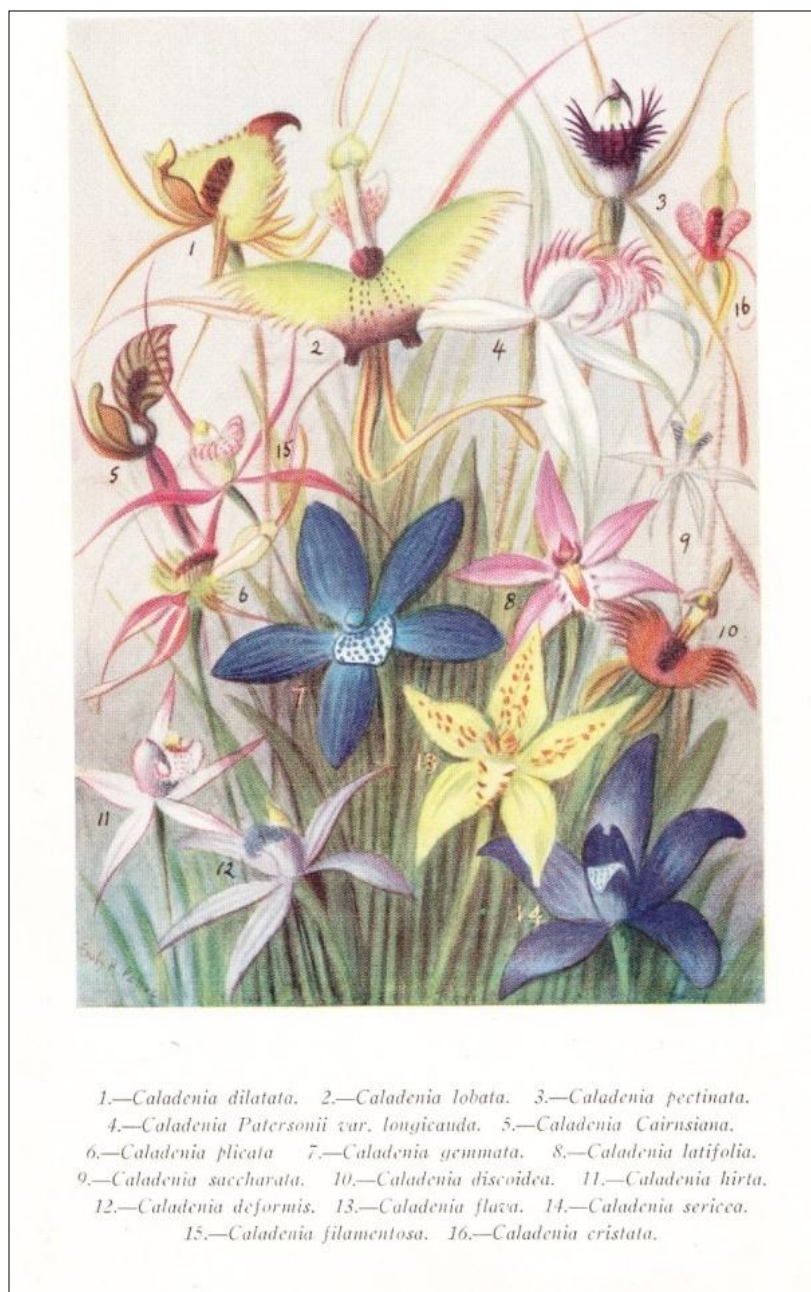
Figure 6. Plate from Emily Pelloe’s *Wildflowers of Western Australia* with sixteen species depicted.



Pelloe’s work constitutes what Judy Dyson refers to as “flower painting” in distinction to the more technical “botanical illustration”. For Dyson, “flower illustration flouts easy categorization, existing in a nomadological state by becoming whatever it is required to be, whether a scientific diagram, historic document, horticultural image or work of fine art” ([9]). Pelloe’s work certainly fits into all of Dyson’s categories enumerated here, yet in my view constitutes botanical illustration, as per Ben-Ari’s definition. Pelloe’s second significant publication, *West Australian Orchids* (1930), consists of three color plates and twelve black and white drawings ([22]) (Table 2). The book opens with verses written by the Western Australian botanist and poet Lilian Wooster Greaves (1869–1956): “Do they say that the bush is all greyness and gloom”? To which the poet replies: “The friendly and cheerful red runner creeps near—/Say, where are the greyness and gloom”? As Pelloe goes on to argue implicitly, orchids vindicate the bush from its characterization as “drab green and desolate grey”, to borrow a phrase from the twentieth-century Australian poet A.D. Hope (1977) [23]. Plate 1 is a synoptic of sixteen species of the orchid genus *Caladenia*, unlikely to grow in such proximity and density in the wild and brought together only through the artist’s imagination (Figure 7). Moreover, the taxonomic detail of Figure 7 might not adequately provide a basis for scientific identification. Hence, Pelloe’s illustrations oscillate between the detailed scientific rigor of “botanical illustration” and the popular

and often less taxonomic aesthetics of “flower painting”. Pelloe comments glowingly on the Orchidaceae family of Western Australia in predominantly aesthetic terms but with a notable recognition of their ecological adaptations: “their delicate tints, dainty fragility of form, the curious structure of many of the species, and their methods of fertilization, constitute beauty that endears them to young and old, and characteristics that fascinate the botanist” ([22], p. 1). Like her earlier text *Wildflowers of Western Australia*, *Orchids* was targeted for a popular audience, as signified by its discussion of scientific naming in introductory pages. Importantly, Pelloe’s emerging conservation ethic involves discretion in picking orchid flowers: “Quality and variety, not quantity, should be the aim of the orchid-hunter” ([22], p. 6). Consequently, Pelloe elaborates on proper methods for collecting orchids.

Figure 7. Color Plate I of Emily Pelloe’s *West Australian Orchids* featuring sixteen species of *Caladenia*.



Despite its focus on the aesthetic qualities of orchids and their arrangement into a fixed botanical portrait, *West Australian Orchids* points to a process mode of engaging with plants over time. Pelloe writes: “the observation of the growth and development of the various species from week to week, and year to year, is a fascinating hobby” ([22], p. 7). Here, the illustrator’s emphasis turns towards “modes of change rather than fixed stabilities” ([15], p. 1), manifested cyclically in the organization of *Wildflowers of Western Australia* according to seasonal flowering. In suggesting a process mode of thinking, Pelloe proposes the notion of becoming “acquainted with the great change in the whole form of the plant” ([22], p. 7). Her depiction of such acquaintance, I argue, comes most fully through her textual narrative, thus indicating the importance of the text-image interface for botanical works. However, unlike the arrangement of plant species by flowering times, *West Australian Orchids* progresses through the major genera of orchids, including *Thelymitra* (9–14); *Epiblema* (15); *Diuris* (15–18); *Microtis* (18–21); *Goadbyella* (21); *Prasophyllum* (22–28); *Caleana* (28–29); *Spiculaea* (29); *Drakaea* (30–31); the well-known “hammer orchids” “owing to the curious hammer-like appearance and action of the lip, delicately poised on a slender, hinged, stem-like claw” ([22], p. 30); *Pterostylis* (31–37); and *Caladenia* (42–59). The second color plate features *Prasophyllum*, *Thelymitra* and *Microtis* orchids composed into a synoptic with the vibrant colors of the orchid flowers contrasting to the background’s non-descript greyness. The flower bouquet style of illustration employed by Pelloe encourages collectors by presenting possibilities for flower decoration. Whilst *West Australian Orchids* provides historical, cultural, and ecological allusions, including a reference to Charles Darwin’s research, Pelloe’s illustrations constitute a form of botanical portraiture lacking significant correlation to ecology or process. It is only in conjunction with the textual material that her illustration hints at a process mode of botanical representation linked to the changes plants go through over time and ultimately to an ecological awareness of conservation urgencies. A process mode of representation through the text-image interface is developed explicitly in Philippa Nikulinsky’s work.

Table 1. Summary of Emily Pelloe’s *Wildflowers of Western Australia* (1921). Pelloe lists the scientific and common names for most of the plants she illustrated. In three instances, marked with a single asterisk, Pelloe does not provide common names. Hence the common names of these three plants (Common Hovea, Purple Flag and Lilac Hibiscus) have been cited from the online taxonomic repository, *FloraBase* [24]. Additionally, according to *FloraBase*, *Pterostylis reflexa* (marked with a double asterisk) has been renamed *Diplodinium reflexum*.

| COLOR PLATES | | | | |
|----------------|---|---------------------|---------------------|--|
| PAGE POSITION | FOCAL SPECIES SHOWN | NOTES | COMMON NAMES | |
| Frontispiece | <i>Eucalyptus ficifolia</i> | 1 species | Red-flowering Gum | |
| Pl. II, 26–27 | <i>Hovea trisperma</i> | 16 genera & species | Common Hovea* | |
| Pl. III, 28–29 | <i>Patersonia occidentalis</i> | 16 genera & species | Purple Flag* | |
| Pl. IV, 34–35 | <i>Calothamnus sanguineus</i> | 20 genera & species | Death-flower | |
| Pl. I, 40–41 | <i>Anigozanthos</i> (8); <i>Macropodia</i> (1) | 9 genera & species | Kangaroo Paws | |
| Pl. V, 46–47 | <i>Hibiscus huegelii</i> | 11 genera & species | Lilac Hibiscus* | |
| Pl. VI, 66–67 | <i>Grevillea excelsior</i> | 13 genera & species | Orange Bottle-brush | |
| 70–71 | <i>Nuytsia floribunda</i> | 1 species | WA Christmas Tree | |

| BLACK AND WHITE DRAWINGS | | | | |
|--------------------------|--|---------|--------------------|---|
| PAGE | FOCAL SPECIES SHOWN | NOTES | PELLOE’S NOTES | COMMON NAMES* |
| 21 | <i>Eucalyptus</i> spp. | 11 spp. | - | gum nuts (Jan–June) |
| 22 | <i>Eucalyptus</i> spp. | 8 spp. | - | gum nuts (Jan–June) |
| 33 | <i>Caladenia patersonii</i> | - | “white” | Spider Orchid |
| 36 | <i>Pterostylis reflexa</i> ** | - | - | Shell Orchid |
| 37 | <i>Diuris longifolia</i> | - | “brown & yellow” | Donkey Orchid |
| 48 | <i>Lyperanthus nigricans</i> | - | - | Potato or Red Beak Orchid |
| 51 | <i>Drakaea elastica</i> | - | - | Hammer Orchid |
| 54 | <i>Caladenia menziesii</i> | - | “pink” | Rabbit Orchid |
| 57 | <i>Xanthosia rotundifolia</i> | - | “white” | Southern Cross |
| 62 | <i>Caladenia flava</i> | - | “yellow” | Cowslip Orchid |
| 63 | <i>Prasophyllum fimbria</i> | - | - | Leek Orchid |
| 75 | <i>Thelymitra fuscolutea</i> | - | - | Leopard Orchid |
| 77 | <i>Callitris robusta</i> | - | “fruit” | Rottnest Cyprus |
| 95 | <i>Helipterum</i> & <i>Helichrysum</i> | - | “CA Gardner” | difference between plumrose and barbellate pappus |
| 105 | <i>Casuarina glauca</i> | - | “leaves and fruit” | - |

Table 2. Summary of Emily Pelloe’s *West Australian Orchids* (1930). In this publication, Pelloe lists the scientific names of the plants she illustrated, but less frequently cites the common names. The common names for these orchid species have been verified and cited using the online taxonomic repository, *FloraBase* ([24]). Additionally, according to *FloraBase*, the White Fairy Orchid, *Caladenia paniculata* Fitzgerald, (marked with a double asterisk), has been renamed *Caladenia marginata* Lindley.

| COLOUR PLATES | | | |
|---------------|--|----------------------------|---------------|
| PAGE POSITION | ORCHID SPECIES SHOWN | NOTES | COMMON NAMES* |
| 1 | <i>Caladenia</i> | 16 orchid genera & species | various |
| 32–33 | <i>Prasophyllum</i> (2); <i>Thelymitra</i> (6); <i>Microtis</i> (1) | 9 orchid genera & species | various |
| 64–65 | <i>Lyperanthus</i> (2); <i>Pterostylis</i> (4); <i>Diuris</i> (2); <i>Drakaea</i> (1); <i>Glossodia</i> (2); <i>Caladenia</i> (1); <i>Erichilus</i> (1); <i>Leptoceras</i> (1) | 14 orchid genera & species | various |

| BLACK AND WHITE DRAWINGS | | | |
|--------------------------|---|---|----------------------------|
| PAGE | ORCHID SPECIES SHOWN | PELLOE’S NOTES | COMMON NAMES* |
| 16 | <i>Diuris setacea</i> R. Brown | “half natural size” | Bristly Donkey Orchid |
| 25 | <i>Prasophyllum cyphochilum</i> Bentham | “enlarged lateral sepals and labellum” | Pouched Leek Orchid |
| 26 | <i>Prasophyllum macrostachyum</i> R. Brown | “with enlarged sketch of flower” | Laughing Leek Orchid |
| 27 | <i>Prasophyllum parvifolium</i> Lindley | “half natural size” | Autumn Leek Orchid |
| 31 | <i>Drakaea jeanensis</i> Rogers | “half natural size” | Hammer Orchid |
| 34 | <i>Pterostylis rogersii</i> Coleman | “half natural size” | Curled-tongue Shell Orchid |
| 36 | <i>Pterostylis sargentii</i> Rogers | “half natural size” | Frog Greenhood |
| 44 | <i>Caladenia multiclavia</i> Reichenbach | “half natural size” | Lazy Spider Orchid |
| 51 | <i>Caladenia macrostylis</i> Fitzgerald | “half natural size” | Leaping Spider Orchid |
| 53 | <i>Caladenia roei</i> Bentham | “half natural size” | Ant Orchid |
| 55 | <i>Caladenia paniculata</i> Fitzgerald** | “half natural size” | White Fairy Orchid |
| 65 | <i>Rhizanthella gardneri</i> Rogers | “natural size” | Underground Orchid |

5. Philippa Nikulinsky: Process and Ecology in Text and Illustration

Born in 1942 in Kalgoorlie, Western Australia, Philippa Nikulinsky started working as a natural history illustrator in the 1970s after training as an art teacher and instructing at secondary and tertiary institutions [25]. Illustrating primarily in watercolor, she specializes in Australian indigenous flora, especially of Western Australia and the South-West Floristic Province. Some of her earlier works include *Western Australian Wildflowers in Watercolour* (1980) [26] and *Flowering Plants of the Eastern Goldfields of Western Australia* [27], both published as limited edition runs of about one-thousand copies each. Her most recent book, *Cape Arid* (2012), is co-authored by Alex Nikulinsky

and showcases the flora of the Cape Arid National Park, about 800 kilometers south-east of Perth [28]. Of her considerable body of botanical illustration of the past forty years, I will focus on *Banksia menziesii* (1992) ([25]) and her collaborations with the botanist Stephen Hopper in *Life on the Rocks* (1999) ([7]) and *Soul of the Desert* (2005) ([8]). I argue that these works represent the deeper evolution of a process mode of botanical representation in Western Australia that draws extensively from a text-image interface both between Hopper's more scientifically attuned writings and Nikulinsky's illustrations; and between Nikulinsky's embodied field narratives and her illustrations. Moreover, in Nikulinsky and Hopper's illustrations and textual commentaries, we find a compelling conservation ethos that also marks a progression from the works of Leake and Pelloe towards a post-colonial aesthetics of botanical representation.

Nikulinsky's *Banksia menziesii* consists of twenty-two color plates of the eponymous species. *B. menziesii* grows along a coastal strip from Pinjarra to the Murchison district and has, as Nikulinsky states, "a wide distribution on the west coastal region of Australia, from the Murchison district—approximately five hundred kilometers north of Perth—to Pinjarra—seventy kilometers south of Perth" ([25]). Due to the fact that banksia inflorescences consist of five to six thousand flowers per spike, all coordinated in their flowering times, their illustration has posed a challenge to Western Australian botanical artists over time. In addition to its high technical precision, the work provides an example of a process mode that finds fuller manifestation in her later publications. In the introduction, "The Art of the Banksia", Nikulinsky writes: "In trying to record this cycle—these frozen moments—and to express my response to it, I had the feeling of actually becoming part of the generative process" ([25]), suggesting her sensorial participation in the cycles, ecologies, and temporalities of the plant being studied rather than her visual speculation from afar. The twenty-two color plates are accompanied by twenty-two narrative descriptions arranged on facing pages as short poetic stanzas. The *B. menziesii* series begins with "the pre-bud stage". Nikulinsky comments on "the hidden potential that is stored in them. It is this potential, this essence, that I have sought to capture" ([25]). The series progresses through the seasonal emergence of the inflorescence. The artist "captures" phases in banksia physiology from "the bud of the emerging spike or inflorescence" to further transformations of the flowering spike. Although she focuses on the flower complex and, thus, reflects an *anthocentric* view of banksia, the emergence and decay of the inflorescence over the twenty-two illustrations and, therefore, over time invokes a process mode of perception and appreciation. During the accompanying narrative, Nikulinsky comments on the transformation of the flower spike: "At this time I found the banksia's cycle particularly intriguing and exciting. With the further development of the budding flowers, the orderly pattern on the spike seemed to transform and become chaotic" ([25]).

Centrally for a processist, images of the decay of leaves and flowers signify banksia cycles over time towards the appearance of seeds. The penultimate image shows three banksia seeds: "the beautiful, earth-coloured seeds are thrown from the mother plant, are carried on the wind, and have fallen to the earth" ([25]), exhibiting her interest in the overall anatomy of the plant as linked to its inflorescence. Thereby, Nikulinsky's renderings reveal her interest in the process of flowering correlated intrinsically to the artist's acute aesthetic perception of the flower itself. As mentioned previously, Rescher identifies three defining features of a process. I argue that Nikulinsky's *Banksia menziesii* is exemplary of process, in Rescher's terms, on all three accounts. Firstly, *complex is a noun*:

“a process is a complex—a unity of distinct stages or phases” ([16], p. 2). The process of the inflorescence emerging from a bud, followed by decaying and seeding, represents “a unity of distinct stages or phases”, with each phase captured by one of the twenty-two illustrations in the series. The series creates a sense of temporal unity from bud to seed, a complex which is the inflorescence, and a pattern of development which will be repeated after seeding. Secondly, *unity requires temporality*: “this complex has a certain temporal coherence and unity” ([16], p. 2). The temporal coherence of the *B. menziesii* flowering through the seasons fosters a sense of the banksia organism as a unity changing according to a land-based rhythm; the illustrations signify an ontology that is inherently cyclical and time-dependent. Thirdly, *process yields structure*: “process has a structure, a formal generic format in virtue of which every concrete process is equipped with a shape or format” ([16], p. 2). In this regard, Nikulinsky comments on “the absolute perfection of the structure of the budding spike” ([25]). Hence, the process of inflorescence emergence bears a corresponding particular structure, recorded visually by the illustrator over the multiple frames of the series.

Nikulinsky and Hopper’s later book, *Life on the Rocks: The Art of Survival* ([7]), consists of seventy-eight color illustrations of the unique flora of Western Australian granite outcrops. Whereas *Banksia menziesii* primarily features the flower of one species, *Life on the Rocks* often includes the mammals and insects that pollinate different flowers, thus pointing to an ecologically networked mode of botanical representation. Accompanying each illustration is a botanical account of the species by Hopper and a field narrative excerpt from Nikulinsky. With Nikulinsky’s work in mind, Hopper observes in an interview (not published in the book) an evolution in the botanical aesthetics of Western Australia. Colonial artists “applied considerable artistic license to the form and shape” of flora so that European audiences would recognize antipodean species *as plants* and not something else [29]. According to Hopper, “the celebration of South-West plants in all forms of art is becoming increasingly more common. Instead of trying to shoehorn plants into familiar forms from elsewhere, people are celebrating the uniqueness of the plants of South-West Australia” ([29]). The maturing of Western Australian society, as Hopper speculates, entails a reconfiguration of aesthetic ideas and modes of representation through the development of the visual and written language we use to communicate about the natural world. The process of decay, in particular, is the hallmark of a post-colonial aesthetics of flora in practice amongst regional botanical artists—an evolution from Leake’s work “flower painting” during the colonial era to Nikulinsky’s process illustration during post-colonial years. Hopper characterizes Nikulinsky’s botanical illustrations as unidealized and ecological, and hence epitomizing a movement from plants as *objets d’art* (flower bouquets, aestheticized images, decoration, *etc.*) to plants as dynamic and mutable processes:

She portrays plants and animals in natural situations with warts and all. She doesn’t go for the perfect flower or leaf. If it’s been a bit ‘moth-eaten’ or chewed over by insects or mammals, it gets featured as much as a perfect leaf and flower would be. I guess traditional botanical artists ignored all the blemishes, aiming to illustrate in fine detail the structure of organisms ([29]).

A post-colonial, process mode of representation featuring the decomposition of the flower engages with the ecological changeability intrinsic to flora and the relationships between organisms. Plate 72 of

Life on the Rocks depicts a honey possum (*Tarsipes rostratus*) perched atop the flower of *Banksia verticillata*, endemic to the Walpole-Albany area five hours south of Perth by car ([7], p. 181). (Plate 72 is the cover image of *Life on the Rocks*. To view this image online, please refer to the following link to the Fremantle Press website [30]). The foliage of the banksia is “moth-eaten” and partially browned. The yellow inflorescence is obscured by the foraging honey possum and the unidealized—though ecologically realistic—foliage. There is attention in this representation to natural symmetries between the possum and the banksia flower. Similarly, Plate 67 illustrates sandalwood with gnawed and truncated leaves, warped and aged bark on the lower limb, and dead weather-worn matter at the right side of the composition ([7], p. 171). The composition is the *decomposition* of habitat structures and processes. Importantly Nikulinsky’s written narratives supply representation of the olfactory milieu of the species, as well as the artist’s embodied participation in its environment: “I can’t resist breaking off a piece of dead wood and smelling it” ([7], p. 170). In conjunction with Nikulinsky’s text, Hopper’s account provides the ecological, cultural, and historical contexts of sandalwood: “The search for sandalwood spearheaded (in more ways than one) the earliest colonial penetration of much of the south-west’s semi-arid interior. Sandalwood was one of the infant Swan River Colony’s first exports” ([7], p. 170). Hopper differentiates between the idealized images and written accounts of early artists and the ecological approach of Nikulinsky. “Warts” and blemishes intimate the plant’s individuality—a specific living thing at a specific time—rather than an idealized species, depicted aesthetically as a decoration, ornament, or bouquet. Hopper’s distinction between idealized and ecological botanical renderings implies the emergence of a process mode of representation in recent years in the State.

The final book I will refer to in detail, *Soul of the Desert* (2005), takes as subject matter the arid regions of Western Australia, including the Little Sandy Desert and Carnarvon Range. The book consists of sixty-four color plates and extensive text by both authors divided into three parts: Deserts through Time; Development of a Painting; and The Artwork. Part I is written by Stephen Hopper and includes reflections on the origin of deserts, their geological age, the Indigenous peoples of desert places, European impacts on Western Australian deserts, and “the Soul” of the desert “in the dust, the red rocks and blue sky, the wind and rain, in the dunes and saltlakes, in the people, and in the plant and animal life, waiting to be experienced, revealed, revered, by those who would look” ([8], p. 23). Part II, Development of a Painting, by Philippa Nikulinsky details her practice of botanical illustration, including the patience, time, physical exertion, and dedication required to create a single illustration ([8], pp. 24–27). Part III, The Artwork, is organized around four themes: Ranges and Rock Outcrops; Plains; Dunes; Wetlands; Widespread Plants and Animals; and Diversity Explored. Plate 50, Holly Grevillea (*Grevillea wickhamii*), consists of two separate illustrations. The first depicts the flowers, stems, and thorny leaves of the species with a Black Honeyeater (*Certhionyx niger*) positioned prominently in the foreground. As the commentary states, “it is a favourite nectar sources for honeyeaters” ([8], p. 138). The second illustration shows flowers, leaves, and characteristically splayed open grevillea nuts, but without the Black Honeyeater. Considered together, the two illustrations constitute an ecological mode of botanical illustration, representing the vital networks of the flower. Moreover, Hopper’s textual commentary recognizes the cultural, historical, and ecological contexts of

Holly Grevillea as, for instance, “named for John Wickham, captain of the *Beagle*, who together with naturalist Charles Darwin collected the original specimen” ([8], p. 138).

6. Conclusion: Processism and the Text-Image Interface

Botanical illustration is more than “the accurate portrayal of a flower in order to facilitate its precise scientific identification” [31]. The use of process philosophy as a framework allows deeper analysis of botanical illustration and, specifically, the text-image interface appearing in the works of Leake, Pelloe, and Nikulinsky—three key Western Australian botanical illustrators whose works have not been significantly and critically investigated. The text-image interface encompasses a mutually illuminating complementariness between visual and written representations of plants—and more broadly between the arts and sciences. Leake’s marginalia, Pelloe’s narrative accompaniments, and Hopper and Nikulinsky’s textual dialogues demonstrate that the aesthetically compelling aspects of illustration reciprocally augment the contextualizing power of narrative language. Hence, the wider field of botanical illustration and the illustrated plants themselves comprises ecological, historical, cultural, and sensory knowledges that can be unseen in graphic illustration of plant anatomies alone. Dyson asserts that “botanical illustration’s designation as scientifically orientated is not questioned; however its participation in a wider cultural field cannot be ignored, while the belief that botanical illustration is a neatly bordered genre must also be dispelled. As a cultural text, botanical illustration requires further research” ([9]). I have attempted to read the works of Leake, Pelloe, and Nikulinsky as cultural texts. In doing so, I suggest that, because living plants themselves participate in and transact with “a wider cultural field”, so must botanical illustration be analyzed for its networked and contextual qualities, particularly in order to identify an ecologically grounded form of botanical representation. The further investigation of process aesthetics amongst botanical illustrators would require a deeper examination of the historical contexts impacting representational practices, such as the birth of the environmental and sustainability movements in the later part of the twentieth century. In the final analysis, an ecological mode of botanical illustration is also an act of empathy, passion, and admiration for living plants. In this sense, botanical works such as those of Leake, Pelloe, and Nikulinsky are entreaties to botanical conservation, borne of love [32].

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